

1. A snowshoe providing two degrees of rotational freedom  
5 of a user's boot relative to the snowshoe, comprising:

a snowshoe frame comprising a unitary peripheral element  
which extends from a nose area of the snowshoe back to a tail end  
of the snowshoe, the frame being contiguous and forming a closed  
loop around its periphery, and

10 a torsion suspension secured to the frame and positioned  
within the frame, including a pair of arms affixed to the frame  
and extending toward the nose of the snowshoe, the two arms being  
arranged so as to be generally parallel to a plane defined by a  
central portion of the snowshoe frame, the two arms having  
15 forward ends, and pivotal means extending between the two front  
ends of the arms and providing for attachment of a user's boot to  
the snowshoe permitting rotation about a generally horizontal  
axis extending between the front ends of the two arms while  
biasing the boot to a preselected angular position about said  
20 horizontal axis, and

decking supported by the snowshoe frame for engaging  
terrain.

2. The snowshoe of claim 1, wherein the pivotal means

extending between the two front ends of the arms comprises a torsion bar capable of rotational deflection and providing said biasing to a preselected rotational position about the generally horizontal axis.

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3. A snowshoe providing two degrees of rotational freedom of a user's boot relative to the snowshoe, comprising:

10 a molded snowshoe body of fiber reinforced plastic material, the snowshoe body including deck areas for engaging downwardly against terrain,

15 a torsion suspension on the snowshoe, comprising a pair of arms commonly molded with the snowshoe body and forming a part of the body, extending from a rearward portion of the body generally parallel to one another to forward ends positioned at a forward area of the snowshoe, the two beam arms being suspended from said rearward portion and extending forward otherwise unconnected with the snowshoe body, and including a boot platform pivotally connected on a generally transverse axis to forward ends of the two arms,

20 whereby a user of the snowshoe has a first degree of rotational freedom in a pitch direction, about the generally transverse axis, enabling the boot to be tipped up or back with respect to the snowshoe, and whereby a second degree of rotational freedom is provided by the suspended beam arms,

allowing rotation of the boot relative to the snowshoe in a roll direction, about a generally longitudinal axis through the snowshoe, the arms providing a resilient bias back toward a neutral position, so that the snowshoe user can transverse on even or side hill terrain with the snowshoe firmly planted on terrain and without stress or injury to the ankle or foot.

4. The snowshoe of claim 3, including a torsion bar pivotally connecting the two forward ends of the arms to the boot platform, the torsion bar being capable of rotational deflection and providing bias to a preselected rotational position about the transverse axis, the boot platform being secured to the torsion bar near a center region of the torsion bar, allowing for torsion from the connection to the arms at both sides of the torsion bar.

5. A snowshoe providing two degrees of rotational freedom of a user's boot relative to the snowshoe, comprising:

a snowshoe frame comprising a unitary peripheral element which extends from a nose area of the snowshoe back to a tail end of the snowshoe, the frame being contiguous as forming a closed loop around its periphery,

a boot platform, and suspension means secured to left and right sides of the frame and positioned within the frame, for securing the boot platform to the frame with two degrees of

rotational freedom, one degree of freedom being about a pitch axis and the second being about a roll axis, with the boot platform being resiliently biased toward a neutral position on both axes, such that a user's boot can flex rotationally about the two degrees of rotational freedom when walking on uneven terrain, and the suspension means substantially preventing rotation of the snowshoe relative to the boot about a generally vertical axis, and

decking supported by the snowshoe frame for engaging terrain.

6. The snowshoe of claim 5, wherein said neutral position comprises, on the pitch axis, a toe-down angled position of the boot platform relative to the snowshoe frame.

7. The snowshoe of claim 5, wherein the suspension means comprises tensioned cables connected to the frame and to the boot platform.

8. The snowshoe of claim 7, wherein the tensioned cables, at each side of the boot platform, comprise cable sections spaced apart at their connections to the boot platform and converging closely together at the snowshoe frame, and spring means connected to the frame for applying tension to the cable

sections.

5 9. The snowshoe of claim 8, wherein the cable sections reach the snowshoe frame in a spaced apart relationship, the two cable sections having ends which are pulled by the spring means, and the cable sections passing through holes in a section of the snowshoe frame in said spaced apart relationship, whereby the spring tension and the spacing at the frame between the two cable sections establishes a neutral position about the pitch access, 10 to which the boot platform is urged by the spring means.

10 10. The snowshoe of claim 9, wherein the neutral position is a toe-downward angled position relative to the snowshoe frame.

15 11. In a molded plastic snowshoe, a pair of bottom rails on the snowshoe, the rails extending downwardly for engaging terrain and extending generally in the snowshoe longitudinally but curving from front to back, whereby the rails provide forward/aft traction as well as lateral traction, and add rigidity to the 20 molded snowshoe.

12. The snowshoe of claim 11, wherein the rails curve inwardly toward one another in an intermediate area, then back outwardly away from one another, toward the back of the snowshoe.

13. The snowshoe of claim 11, wherein the rails are metal and are insert molded into the molded plastic.

14. The snowshoe of claim 13, wherein the rails have a series of bottom apex points for increased traction on firm snow or ice.

15. The snowshoe of claim 13, wherein the metal rails extend generally longitudinally and in spaced apart relationship in the snowshoe, but curve inwardly toward one another in an intermediate area, then back outwardly away from one another, toward the back of the rails.

16. The snowshoe of claim 11, wherein the rails include lateral holes at similar locations on the two rails, and including a bent wire heel lift member extending down through openings in the molded snowshoe body and engaging in the holes of the rails to provide pivot points, the heel lift being pivoted from a stored position up to a heel lift position.

17. The snowshoe of claim 16, wherein the rails comprise metal rails each with a series of downwardly extending apex points for engaging firm terrain, the metal rails being insert molded into the plastic material of the molded plastic snowshoe.

18. The snowshoe of claim 17, wherein the metal rails extend generally longitudinally in the snowshoe in spaced apart relationship, but the rails curving inwardly toward one another, then back outwardly, as they progress toward the rear.

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19. The snowshoe of claim 11, wherein the molded plastic material comprises a polypropylene blend with low temperature impact modifiers.

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